

CLAIMS

What is claimed is:

1. A low voltage interrupt system for an electric winch comprising:
an electrical supply that provides current to the electric winch;
a voltage sense circuit that determines a voltage of the electrical supply;
a controller that compares the voltage to a threshold voltage at a first instance and generates an interrupt signal if the voltage is below the threshold voltage for a first period; and
a relay that actuates in response to the interrupt signal, thereby interrupting the current to the electric winch.
2. The system of claim 1 wherein the electrical supply includes a battery.
3. The system of claim 1 wherein the voltage sense circuit includes an A/D converter that samples the voltage of the electrical supply.
4. The system of claim 1 wherein the relay interrupts the current for a second period.
5. The system of claim 4 wherein the controller compares the voltage to the threshold voltage at a second instance after the second period.

6. The system of claim 5 wherein the controller terminates the interrupt signal if the voltage is not below the threshold voltage after the second period.

7. The system of claim 1 further comprising an alternator that recharges the electrical supply.

8. The system of claim 4 wherein the controller compares the voltage to an enable voltage at a second instance after the second period, wherein the enable voltage is greater than the threshold voltage.

9. The system of claim 8 wherein the controller terminates the interrupt signal if the voltage is not below the enable voltage after the second period.

10. A low voltage interrupt method for an electric winch comprising:
providing a current from an electrical supply to the electric winch;
determining a voltage of the electrical supply;
comparing the voltage to a low voltage threshold at a first instance;
generating an interrupt signal if the voltage is less than the low voltage threshold for a first period;
receiving the interrupt signal at a relay that interrupts the current in response to the interrupt signal.

11. The method of claim 10 wherein the step of determining the voltage includes sampling the voltage at an A/D converter.

12. The method of claim 10 wherein the step of interrupting the current includes interrupting the current for a second period.

13. The method of claim 12 further comprising comparing the voltage to the low voltage threshold at a second instance after the second period.

14. The method of claim 13 further comprising terminating the interrupt signal if the voltage is not below the low voltage threshold after the second period.

15. The method of claim 12 further comprising comparing the voltage to an enable voltage threshold at a second instance after the second period, wherein the enable voltage is greater than the low voltage threshold.

16. The method of claim 15 further comprising terminating the interrupt signal if the voltage is not below the enable voltage threshold after the second period.